

Office of Marine and Aviation Operations

SAFETY NEWS

From the Safety and Environmental Compliance Division

SIXTEENTH EDITION

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Message from Mr. Kevin Ivey, Director, SECD

In this issue, we start off by announcing changes in the manner in which we identify and apply shipboard safety standards. We also take a year-long look at accident rates and a quarterly review of our most common accidents by type and severity. In the News and Notes section, we cover a wide range of topics including announcement of the winner of the NOAA Proactive Safety Ship of the Quarter Award. We want to continue good lines of communication between Centers and Headquarters and throughout the organization to improve safety. We believe the Spirit of Safety Program is having a positive impact in the fleet as is the work being done by the fleet inspection team, small boat safety program, aviation safety program, dive safety program, MOC STEM, the MOC Safety Committee, and the AOC Safety Council. We hope that the information shared in this newsletter is, in part, contributing to our improved safety performance. There is always room for improvement. Please keep us in the loop. Feel free to share your thoughts and suggestions. We wish everyone a healthy holiday and a happy new year.

Stay safe...



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POLICY SPOTLIGHT

Fleet Inspection Standards Changed to Require Compliance with 46 CFR §188-196

The Director of the NOAA Corps and OMAO made a landmark decision in September 2013 requiring vessels to be inspected and maintained to standards specified in the Code of Federal Regulations for Oceanographic Research Vessels (ORV). These standards are defined in 46 CFR chapters §188-196 or more commonly referred to as Subchapter U. This would necessitate vessels to comply with the same national and international rules and regulations as non government owned ORVs for construction, maintenance, international conventions for the safety of life at sea (SOLAS) and pollution prevention (MARPOL), including the establishment of a USCG approved Safety Management System (SMS). These standards may also require some NOAA vessels to maintain a USCG Certificate of Inspection or COI.

Rear Admiral Michael S. Devany further stated in his decision memorandum that the implementation of these standards would be both phased and risk based according to vessel age, routing, and build standards.

“The ORV standards will serve as the foundation for safe and efficient operation of our fleet as we conduct scientific research in both domestic and international waters. In addition, formally adopting and adhering to a well recognized standard is a key component to the implementation of an approved Safety Management System for our fleet,” he said.

Recently approved vessel safety standards require establishment of new systems to manage risk

So what is a Safety Management System? It is a systematic and continuous management process based on proactive identification of hazards and analyses of their risk.

Human error accounts for 60-80% of all maritime accidents. When you hear the term SMS it is about managing the manageable, so it requires knowledge of how, what, and why human errors occur. It is a tool used to help keep people, vessels and the environment safe. It encourages the development of a safety culture where safety is built into our everyday work processes. This culture involves everyone from the deckhand to Secretary of NOAA. Everyone is responsible.

An SMS includes a set of documents defining how a vessel is to be operated safely and how risks are controlled. Specifically we are talking about:

- How NOAA vessels operate on a day to day basis;
- What happens if there is an emergency on a vessel, i.e. a fire or a person falls overboard;
 - Defining vessel mission profiles, defining their capabilities, what they do and where they operate;

- The establishment of a Designated Person (DP) who is assigned clear responsibility for the implementation of a policy, task, or procedure
- How vessel operations are conducted, specifically who does what, how they do it and when;
- How hazards are identified, assessed, and how risk is managed;
- Defining what logs and records are to be maintained aboard vessels;
 - How the crew is to be trained and establishing procedures to define how and when drills will be conducted

Twelve sections comprise the Safety Management System

1.) **Introduction** – Gives key details of the OMAO organization:

Mission, people, assets, operating environment, and POCs

2.) **Safety and Environmental Protection Policy** - Procedures to ensure operations are conducted safely and what legislation is relevant to OMAO operations

3.) **OMAO Responsibility and Authority** – Defines OMAO's organization, i.e., the "Org Chart" with clear reporting chains defined

4.) **Designated Person(s)** – Oversee the safe operation of the vessel fleet and is responsible for the SMS

5.) **Vessel Commanding Officer Responsibility and Authority** – Specifies the CO/Master of the vessel is responsible for understanding the SMS and ensuring it is being used on the vessel. Specifies the CO is responsible for effective communication with the crew and any passengers

6.) **Resources and Personnel** – Provides information about OMAO personnel. Specifically any qualifications they need; how and who trains them; where training records are maintained, who is responsible for them, and how long they are kept

7.) **Vessel Operating Procedures** – Specifies how day-to-day operations are conducted aboard the vessels. Provides key details on vessel vital systems, start-up and shutdown procedures, not just *what* to do, but *how* to do it; establishing a responsibility matrix for specific duties and positions; and specifying how and where the records are kept

8.) **Emergency Preparedness** – Defining duties and responsibilities, establishing minimum requirements for satisfactorily completing drills, recording drill results, and defining how often they must be conducted

9.) **Reporting Procedures** – Defines methods and procedures intended to reduce hazards in the organization's operating environment – specifically ***how risk is managed***; specifies formalized methods to be used in hazard identification; procedures for reporting specific types of incidents; clearly defining who is responsible to fix reported problems;

what to do if someone gets hurt on a ship; and documenting specific actions to be taken when the vessel is involved in an accident or serious incident

10.) **Maintenance** – Defines when and how emergency equipment is checked and tested; how that equipment meets official certification requirements, i.e., daily checks, OEM maintenance schedules; where the tech and operation manuals are located and/or how you get them; where and how maintenance and repair actions are recorded, i.e. SAMMS;

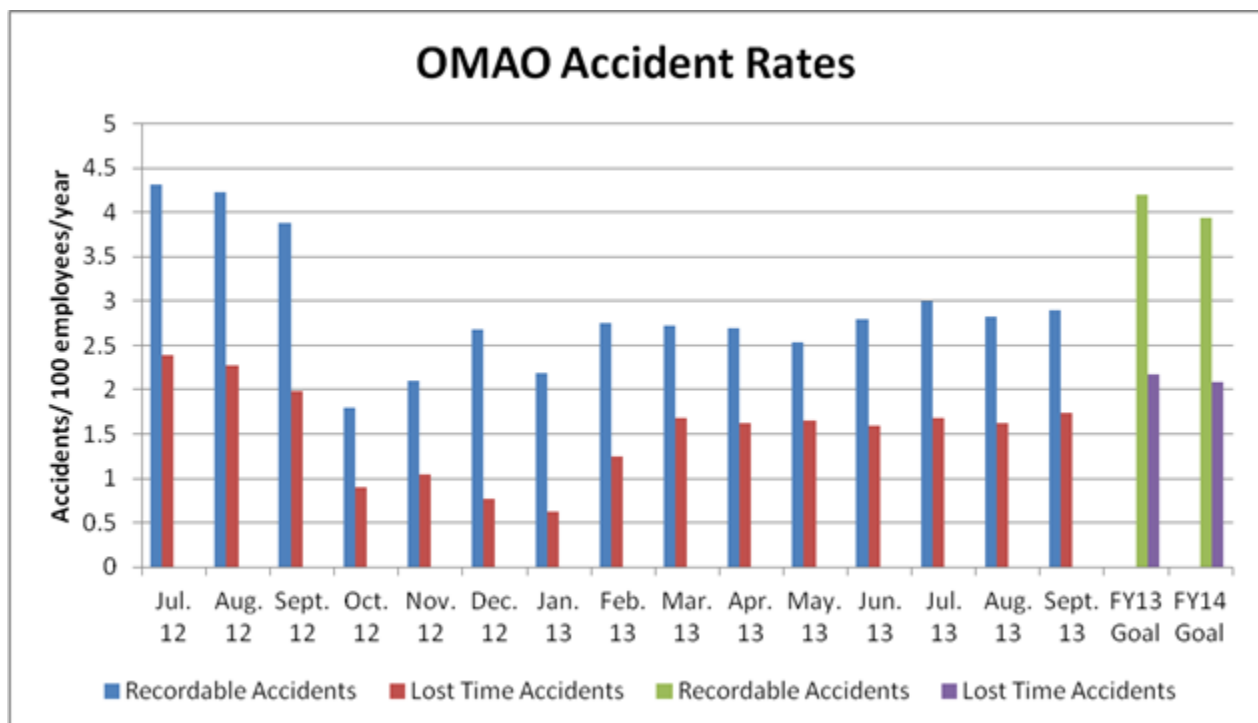
11.) **Documentation** – Basically describes how documents are handled developed, approved, changed, and controlled within OMAO. This involves detailed procedures for utilizing and finding things in the Document Management System (DMS).

12.) **Review and Verification** - Gives specific procedures to audit the Safety Management System to ensure it is in compliance with regulatory requirements.

To summarize the SMS can help to keep vessel operations safe, reduces the risk of accidents, and actually saves money.

ACCIDENT STATISTICS

Accident rates over the past 15 months (ending FY13) and a corresponding bar graph are shown below followed by pie charts showing the percentage of incidents by type and by severity during the fourth quarter 2013. Accident rates continue to be lower than they were a year ago. Over the course of the fiscal year we met our goal for continual improvement. Again, it warrants mentioning, we strive for zero accidents. Thank you for the continued effort and attention to detail that's required to work safely. No one wants to be injured. We want everyone to leave work in the same condition as they arrived.

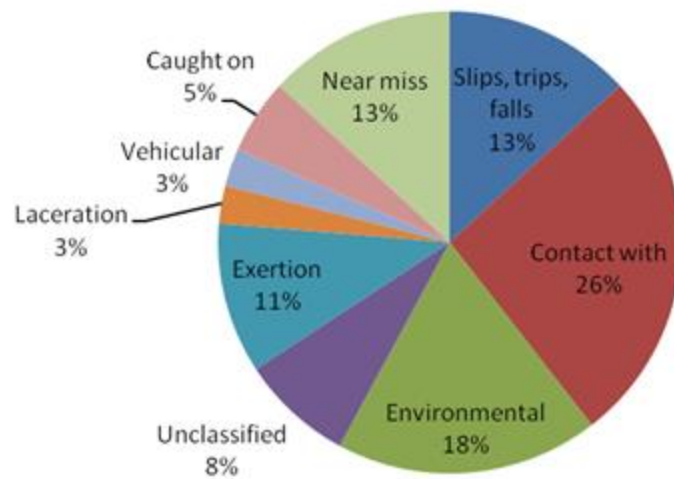


OMAO Annual Accident Rates*

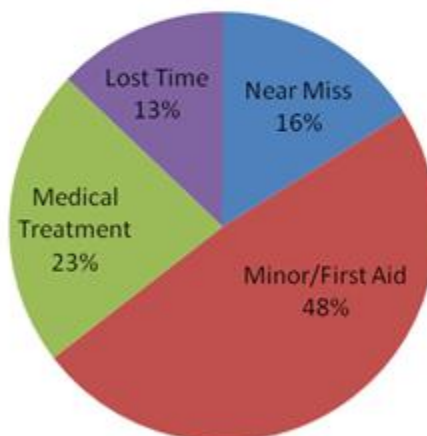
	FY12 Total	FY13 Total	FY13 Goal	FY14 Goal
Recordable Rate	3.88	2.90	4.20	3.94
Lost Time Rate	1.99	1.74	2.17	2.09

*Accident rates are calculated based on the total number of recordable and lost time accidents that occur in the workplace compared to the total number of hours worked by all employees at that workplace. The accident rate represents the number of accidents that have occurred per 100 employees for the year.

Percentage of Total Number of Incidents by Type



Percentage of Total Number of Incidents by Severity



RECENT INCIDENTS: CAUSES AND LESSONS LEARNED

This section provides a description of recent incidents that have occurred in OMAO. In many cases, more thorough follow-up investigations have been conducted and more comprehensive lessons learned have been disseminated to targeted audiences within OMAO. The information below is intended to remind us of the importance of staying safe.

Description: An injury occurred to a crewmember aboard a NOAA ship while attempting to remove a sheave assembly from a piece of equipment used to raise and lower instruments over the side of the ship. The equipment was not in use, and the sheave assembly was in a stowed position. The crewmember was working from a ladder on deck with the sheave assembly overhead. During disassembly, a bolt was removed causing a component of the sheave to come loose and strike the crewmember's head. The crewmember was wearing a hardhat, however, the loosened component swung in an arc allowing it to strike below the bottom of the hardhat.

Causal Factors: Primary cause of the accident was unfamiliarity with the design of the equipment components. The crewmember did not realize that removing the bolt from the assembly would cause a portion of the sheave to swing free.

Lessons Learned: Seek assistance when working with unfamiliar equipment. When working on unfamiliar equipment or doing a job for the first time, conduct an operational risk management assessment to define procedures to be followed based on a review of equipment design drawings and technical manuals. Additional questions to consider include: Is it possible to lower the equipment to deck level for maintenance, vice working overhead? Is additional personal protective equipment warranted? Is additional training required?

Description: A crewmember aboard a NOAA ship was scraping paint as part of routine deck maintenance and struck elbow on a railing resulting in an injury requiring medical attention. Weather was calm, winds were less than 10 knots, seas were less than 3 ft, and the work was being conducted in a professional manner.

Causal Factors: The ship cited the primary cause of the accident as a lack of situational awareness while scraping paint near interferences. Many of these types of accidents are a result of poor positioning, improper tool chosen for the job, and/or speed at which the work is being performed.

Lessons Learned: These types of incidents happen fairly frequently. Almost all of them can be avoided. Choose the appropriate tool and speed at which to work based on surroundings and conditions. Always check your position relative to your surroundings. Change the angle and speed you are working to avoid interferences taking into consideration the potential for your hand or tool to move or slip.

Description: While picking up a hinged ladder used for climbing in and out of small boats, a NOAA shipboard employee got fingers pinched between the hinged sections of the ladder resulting in a minor laceration across the fingers.

Causal Factors: The ship cited primary cause as improper positioning/speed. Employee placed fingers in a pinch point on the ladder and when the platform section moved on its hinge, fingers were caught between platform and ladder.

Lessons Learned: For this incident, the ship indicated corrective actions as placing hands on the outside of the platform and ladder when handling, and taking time to ensure proper positioning when lifting ladder off the deck. Additional considerations include clearly identifying and labeling pinch points, and checking whether or not the ladder can be secured in the closed position when moving it to eliminate the pinch points.

Description: A person aboard a NOAA ship was entering the ship's lab via an aft water-tight door. Upon opening the door, it came off its hinges. Fortunately, the person was able to catch the door and control its fall onto the deck. There was no injury to the person or anyone else in the vicinity, and the incident was reported as a near miss. The door hinges had been removed for maintenance, but caution tape put in place to prevent use of the door had blown away and no other signs or markings were on the door to show that it was out of service.

Causal Factors: Primary cause was a failure to adequately warn and communicate that the door was out of service.

Lessons Learned: Ensure caution labels, caution tape, and warning signs are securely in place and cannot be easily removed or become loosened or lost. Wherever possible, more permanently label, lock, or secure areas and equipment that present a hazard.

Lessons Learned Safety Bulletins are routinely issued to the fleet on an as needed basis and results of formal Accident Investigations are posted on the following web site: http://www.oma.noaa.gov/accident_investigations_lessons_learned/index.html

BEST PRACTICES

The best ideas for improving safety come from the field. Do you have an idea to help prevent injuries? Please send it to the SECD Chief (oma.secd@noaa.gov) or to MOC safety staff at Safeship.moc@noaa.gov and we will plan to share it throughout OMAO.

NEWS AND NOTES

Proactive Safety Ship of the Quarter – NOAA Ship *Thomas Jefferson* is the winner of the Proactive Safety Ship of the Quarter Award for the quarter ending September 30, 2013. Crew members will receive either one or two days of additional time-off based upon their time spent aboard the ship during the quarter. After many consecutive quarters near the top, the ship broke through earning the highest point total for the quarter. Congratulations *TJ*!

Other high scoring ships in order of finish for the quarter were *Nancy Foster*, *Oscar*

Elton Sette, Rainier, Oscar Dyson, and Hi'ialakai. High scores were earned based in part on quarterly reports submitted to Safeship.moc@noaa.gov describing proactive safety activities. The reports typically provide a summary of safety stand-downs, safety training, and drills that were conducted during the quarter beyond what is minimally required. The safety reports also highlight any additional activities such as identification and correction of safety hazards, individual safety awards, safety committee meetings held, and resolution of safety-related issues. In addition, please keep in mind that points are being awarded based on information submitted via the Spirit of Safety program. So keep those cards coming.

For more information about the award and the scoring criteria, please refer to safety procedures document 1701-23, Proactive Safety Improvement Award – Ship of the Quarter. The document is available via the OMAO Document Management System on the inside OMAO website, <http://10.49.29.4/WebDesktop/Binders.aspx>.

Working in the Cold – Extremely cold weather can be dangerous for those who work outdoors or indoors in areas with little insulation or heat. The two serious health risks associated with cold weather are hypothermia and frostbite. When working in cold temperatures, the following precautions are recommended: dress in layers; avoid tight clothing since it may restrict blood circulation; ensure ears, face, hands, and feet are properly covered; wear waterproof and insulated boots; move to warmer areas during breaks; include a thermometer and chemical hot packs in first aid kits. Workers are also reminded to watch out for one another. Monitor your physical condition as well as your co-workers'.

Contact with/Struck by – Be aware that an unstable or a non-stationary platform, or any surface in motion relative to your motion may be an accident waiting to happen. Similarly, one or more moving objects, whether the objects are in motion due to their function or caused to be put in motion due to your actions, can also be an accident waiting to happen. All of these scenarios can create pinch points and situations that can lead to contact-with or struck-by injuries. Take precautions including paying particular attention to body, hand, and foot positioning and placement; proper use of personal protective equipment, tie-backs, restraints, and rigging; choice of tools; the speed at which you are working; and the need to work with a partner who is there primarily to watch your back to prevent or protect you from a potential moving object.

T'is the Season for Candles and Christmas trees – While both are great festive holiday traditions, candles and Christmas trees can pose inherent fire hazards. Please reduce the risk by taking the following precautions:

Candles - keep at least a foot away from combustibles; keep on non-flammable holders or bases; keep out of reach of children and pets; do not place in locations where they could be easily knocked over; never leave a lit candle unattended.

Christmas trees - keep away from sources of heat or flame; keep live cut trees regularly watered; refrain from using high heat decorative lighting; ensure electrical plugs and cords are in good condition; do not keep lights plugged-in for prolonged periods when unattended.

Black Ice – Employees are reminded to drive defensively at all times and especially this time of year with the potential for ice and snow on the roads. One hazard to be mindful of when behind the wheel is black ice. Black ice – which can almost be invisible – forms when the air temperature is warmer than the pavement. This causes moisture to form and rapidly freeze on the road surface creating a thin, transparent layer of ice on the roadway. Recommended driving precautions and tips include:

- Bridges, overpasses, and tunnels are susceptible to formation of black ice especially in the early morning hours as the air temperatures warm and the pavement remains cold.
- Never lock your brakes while driving on black ice. It will cause the vehicle to skid with loss of steering. Anticipate the need to reduce speed by decelerating in advance of braking.
- Keep your distance. The distance needed to stop is twice as long on black ice as compared to normal conditions. Staying at least three car lengths behind the car in front of you is recommended.
- Salting and sanding roadways helps neutralize black ice, but it is not always applied equally along the roadway creating patches of ice that can be encountered without warning. Also, salt loses its effectiveness when temperatures are 15 degrees F or colder.

Lithium-ion Battery Safety – Lithium-ion batteries seem to be everywhere these days. Chances are any device that utilizes a rechargeable battery contains a lithium-ion battery, think lap-tops, iPhones, hand-held power tools, and now even automobiles and airplane auxiliary power units. The technology associated with design, construction and use of the various types of lithium-ion batteries has evolved over the years to improve their overall safety and efficiency. That said, lithium-ion batteries still pose a significant safety risk if they are not designed, manufactured, and used in accordance with strict guidelines.

If overheated or overcharged, lithium-ion batteries may suffer thermal runaway and cell rupture. In extreme cases, this can lead to fire. In addition, deep discharge of lithium-ion batteries may short-circuit a cell within the battery, which could also lead to fire or would make recharging the battery unsafe. To reduce these risks, lithium-ion battery packs contain fail-safe internal circuitry that shuts down the battery when its voltage or temperature is outside its safe range. However, if a battery is poorly designed, improperly constructed, or if it has been damaged, the fail-safe features could become ineffective.

As a result, it is good practice to charge the battery at regular intervals when it has not been in use for prolonged periods. It is also important to avoid overcharging the battery,

and to use only the charger supplied by the original equipment manufacturer. In all cases, always read and follow manufacturer's guidelines when re-charging and using equipment containing lithium-ion batteries.

EPIRB Failures – The U.S. Coast Guard is recommending that vessel operators carefully inspect their EPIRBs' antennas and float-free releases for evidence of corrosion damage. During routine inspections of commercial fishing vessels, the Coast Guard discovered that a high percentage of antennas equipped to Satellite 406 Cat I EPIRB. (product number 2754, made by ACR Electronics Inc.) failed inspection. Some of the antennas showed rips or tears in their outer coating. Others showed no signs of perforation but bulged near the base. When unscrewed, extensive corrosion was discovered. The NOAA Small Boat Program has found a broken antenna and a malfunctioning activation switch which would cause the EPIRBs to not function.

An EPIRB must be inspected monthly to identify possible failures and verify the EPIRBs ability to activate during test activation. Inspection should include: visually inspect the overall condition of the device and hydrostatic release unit; conduct a test activation in accordance with the manufacturer's instructions; verify that the battery and releasing unit's internal hydrostatic release has not expired and is serviceable; check for a current registration sticker; and ensure the device is mounted in an area free of obstruction if it were to deploy.

An EPIRB could be your only means of communication during an emergency to alert rescuers and provide a pin point location for assistance and rescue.

Fishing Vessel Casualties – For those interested in the learning more about the risks associated with commercial fishing vessel operations, The U.S. Coast Guard has conducted a very comprehensive study titled, Analysis of Fishing Vessel Casualties – A Review of Lost Fishing Vessels and Crew Fatalities, 1992-2010. A copy of the study is available via the NOAA Small Boat Program website http://www.sbp.noaa.gov/acc_lessons/docs/USCG_Homeport_FVStudy.pdf. The Small Boat Program reports that the findings and corrective actions identified in the USCG study are very relevant to NOAA ship and small boat operations from a lessons-learned perspective.

TERM OF THE MONTH

Incident/Accident Safety Investigations – NOAA requires all accidents to be investigated. Typically, accidents that result in minor injuries, injuries that require medical attention, and incidents involving property damage of less than \$25,000 are conducted at the first-line supervisor level. Incidents resulting in injuries that cause lost work-time greater than five days, injuries to three or more employees, or property damage exceeding \$25,000 are conducted by second level supervisors and often at a level above that. Fatalities and property damage accidents of \$1M or greater are required to be conducted at the NOAA level and usually involve investigation by a regulatory agency like the U.S. Coast Guard or Federal Aviation Administration, or an organization like the National Transportation Safety Board. In all cases it should be made clear, the purpose of a *safety investigation* is not to identify blame, determine guilt, or impose disciplinary actions. Facts surrounding the incident are gathered to answer: who, what, when, where, why, and how for the purposes of identifying causes, corrective actions, and lessons learned in order to prevent a similar accident from occurring in the future.

COMMON INTERESTS

Below is an interesting article by Patrick McCorry, vice president at global safety consulting firm BST, excerpted from the November 2013 edition of *Safety+Health* magazine that offers some insight regarding safety leadership, management, and an ever changing workforce.

Safety Leadership

Protecting a changing workforce:

Four things organizations are telling us

By Patrick McCorry

RECENTLY, I MET WITH the vice president of safety at a food processor that employs 14,000 people across 45 facilities. She told me that 23 percent of the company's employees are "Generation Y" (people born between 1980 and 2000) while an additional 26 percent will be retiring over the next five years. In response, this organization is overhauling its approach to safety. As the leader put it, "We need to recognize both that our aging employees are at significantly higher risk of injury, as well as that the people we are hiring are inexperienced and relatively naive about the importance of safety."

Many leaders we work with today are faced with similar challenges in a rapidly changing workforce. Unlike their parents, today's workers may have multiple careers in their working life. They are increasingly older and more diverse. So how are safety leaders thinking about this issue? While by no means exhaustive, here are four things safety leaders are telling us:

1. Safety systems are more important than ever. Leaders recognize that behavior-based safety and other frontline systems are often the first and main point of contact employees have with safety. Keeping them well-run and relevant is essential to addressing exposures as they change. Leaders are increasingly benchmarking system functioning against other organizations and checking performance against known success factors such as leadership, communication plans, union relationships and steering committee rotation.

2. We need "kinder, gentler" supervisors. At the top of many leaders' wish lists are supervisors who can more adeptly manage the new human landscape. Today, employee populations are often weighted heavily at two different ends (the very new and the very experienced). Many workers now come from different industries and cultures. Knowledge gaps are common due to layoffs and early retirements, and so on. These and other reasons are why supervisory development is increasingly moving away from traditional training and focusing on developing leadership skills in the context of the supervisor's day-to-day role.

3. We want to move from compliance to commitment. Just as a rigid, top-down leadership style is inconsistent with the needs of today's workforce, a rules-based approach to safety performance is ill-suited to the leaner organizations they work in. Rules are static and usually based on our best understanding of likely exposure to risk. But live workplaces change, events intersect, things happen. Many leaders see an opportunity to move toward a "culture of commitment": A workplace that supports and encourages engagement with the organization's values and creates an environment in which discretionary effort flourishes. Practically speaking, this means equipping employees to recognize and respond to exposure as it changes. This approach both leverages the experience and insight of older employees and appeals to younger workers' value for autonomy and sense of purpose.

4. Safety is no longer just a workplace issue. Many leaders now see that safety is not an "either/or" proposition. It's a "both/and." At a time when organizations are increasingly precise in their safety interventions (for example, targeting exposures by severity potential), they also are broadening their view to exposures "outside the gates." They see that injuries from things such as distracted driving and home accidents far exceed workplace accidents and want to help. Doing so, they also are connecting with an employee base that increasingly values work that supports a quality home life.

Looking Ahead

Today's changing workforce presents new variables that have the potential to undermine safety performance if not properly understood. As many leaders are discovering, however, with these challenges come great opportunities. Engaging the new workforce in meeting these challenges not only helps keep them safe, it can potentially help leaders advance organizational safety performance itself.

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Safety . . . our mission depends on it